Astronauts Walker, Harris leave corps next week

By Eileen Hawley

Astronauts Dave Walker, and Bernard Harris will leave NASA on Monday to pursue other careers.

Walker will be the Vice President, Sales and Marketing, for NDC Voice Corporation in Southern California. NDC Voice will provide integrated wireless communications and advanced voice processing applications internationally.

Walker

Harris will become the Staff Vice President of Operations for Spacehab, Inc., in Houston. Spacehab owns and operates habitable modules which fly in the cargo bay of the space shuttle and are used for microgravity research and space station resupply activities. He also joins the teaching staff of the University of Texas Medical Branch, Galveston Center for Aerospace Medicine and Physiology as associate professor in internal medicine.

"Dave and Bernard have played key roles in our space program," said David Leestma, director of Flight Crew Operations. "Their expertise, skill and dedication will be missed."

Walker is a veteran of four shuttle flights and has logged over 724 hours in space. He was the pilot on STS 51-A in 1984, the first space salvage mission in history that retrieved for return to Earth the Palapa B-2 and Westar VI. As mission commander of STS-30 in 1989, Walker and his crew successfully deployed the Magellan Venus-exploration spacecraft, the first U.S. planetary science mission launched since 1978, and the first planetary probe to be deployed from the shuttle. Walker next commanded a five-man crew on STS-53 in 1992 that deployed the classified Department of Defense payload. Walker's final flight, STS-69 in 1995, deployed and retrieved a SPARTAN satellite and the Wake Shield Facility.

Harris

Harris has logged more than 438 hours in orbit, flown two space shuttle missions and was the first African-American to walk in space.

In his first shuttle flight, Harris was a mission specialist on STS-55 in 1991—Spacelab D-2—conducting a variety of research in physical and life sciences. Harris was the Payload Commander on STS-63 in 1995 that featured the first flight of the new joint Russian-American Space Program. During the flight, Harris became the first African-American to walk in space.

Four named for neurolab mission in '98

NASA has selected Jay Buckey, Alexander Dunlap, Chiaki Mukai and James Pawelczyk to train as payload specialists for the 16-day Neurolab mission.

Neurolab, dedicated to research on the nervous system and behavior, is scheduled for launch on *Columbia* in early 1998. The mission is a joint venture of six space agencies and seven U.S. research agencies. Investigator teams from nine countries will conduct 31 studies in the microgravity environment of space.

Buckey, 39, earned a doctor of medicine from Cornell University Medical College. He is a resident and instructor in medicine at the Dartmouth-Hitchcock Medical Center in Lebanon, N.H. Buckey was an alternate payload specialist for STS-58, the second Spacelab life sciences mission.

Dunlap, 35, will receive a doctor of medicine degree at the University of Tennessee College of Medicine, in May 1996.

Mukai, 43, is an astronaut with the National Space Development Agency of Japan. Mukai became the first Japanese woman to fly in space when she flew as a payload specialist on STS-65, the second International Microgravity Laboratory mission in 1994.

Pawelczyk, 35, received a doctor of philosophy degree in biology from the University of North Texas. He is an assistant professor of applied physiology at Penn State University.

Although four candidates have been selected to train as payload specialists, only two will fly on the mission. The remaining two will serve as backups, or alternates, and will be ready to serve on the mission crew if necessary. The final selection will be made approximately a year before launch.

Shuttle Facts

For missions through STS-76

Overall Shuttle Totals

Flight days:	606.15 days
Orbits:	9,579
Miles flown:	230,534,997
Payload tons launched:	9,150
Payload tons deployed and left in space:	545
Retrieved payload from orbit:	18.5 tons
Total number of crew members:	440
Total number of individuals that have flown on the shuttle:	220
Number of countries represented by people flown on the shuttle:	12

Space Walk Facts

- The mission with the most space walks was STS-61, *Endeavour*, with five.
- Astronaut Tom Akers has logged the most space walk time with a total of 29 hours and 41 minutes.
- The total number of astronauts who have walked in space is 37.
- The total amount of space walk time is approximately 396 hours.

Shuttle Facts

- In order to prepare an orbiter for flight, 10,000 separate tasks or "events" must take place over a 65 day period, using 40,000 technician labor hours.
- Since 1981, the shuttle fleet has flown in excess of 230.5 million miles, more than the distance from the Earth to the Sun and back.
- It takes only about eight minutes for the space shuttle to accelerate to a speed of more than 17,000 miles per hour.
- The shuttle main engine weighs 1/7th as much as a train engine but delivers as much horsepower as 39 locomotives.
- The turbopump on the shuttle's main engine is so powerful it could drain an average family-sized swimming pool in 25 seconds.
- The space shuttle's three main engines and two solid rocket boosters generate some 7.3 million pounds of thrust at liftoff.
- The liquid hydrogen in the space shuttle main engine is minus 423 degrees Fahrenheit, the second coldest liquid on Earth, and when burned with liquid oxygen, the temperature in the engine's combustion chamber reaches plus 6,000 degrees Fahrenheit.
- The energy released by the three space shuttle main engines is equivalent to the output of 23 Hoover Dams.
- Each of the shuttle's solid rocket motors burns 5 tons of propellant per second, a total of 1.1 million pounds in 120 seconds. The speed of the gases exiting the nozzle is more than 6,000 miles per hour, about five times the speed of sound or three times the speed of a high-powered rifle bullet.
- The combustion gases in a solid rocket motor are at a temperature of 6,100 degrees Fahrenheit, two-thirds the temperature of the surface of the sun.
- A stacked booster is the same height as the Statue of Liberty, 151 feet, but weighs almost three times as much.
- The four engines of a Boeing 747 jet produce 188,000 pounds of thrust, while just one Solid Rocket Motor produces more than 17 times as much thrust—3.3 million pounds. A pair of SRM's are more powerful than 35 jumbo jets at takeoff.
- If their heat energy could be converted to electric power, two SRMs firing for two minutes would produce 2.2 million kilowatt hours of power, enough to supply the entire power demand of 87,000 homes for a full day.
- The Shuttle's Remote Manipulator System, or robot arm, weighs about 905 pounds on Earth but can move objects about the size of a Greyhound bus in space weighing 66,000 pounds.
- The oldest astronaut to fly on the shuttle was Vance Brand who was 59 years old at the time of his flight.
- The youngest astronaut to fly on the shuttle was Sally Ride who was 32 years old on her first flight.

Key Russian interpreter dies after short illness

The U.S. and Russian space programs lost a friend Monday when Boris Goncharov died in Moscow following a short battle with cancer.

While he served part time as an interpreter for many NASA groups working with their Russian counterparts, Goncharov was best known for his work in the Russian Mission Control Center outside Moscow in Kaliningrad.

For 25 years, he served in various capacities as an expert on computer systems. He joined the control center staff as an engineer, eventually becoming head of the department of computer systems. For the past three years, Goncharov was a science associate in the field of space technology applications and computer systems.

His command of the English language kept him busy during the same period as a part-time interpreter. He assisted both sides in helping to bridge the language gap in planning meetings leading to the success of the Phase I Program. Many JSC employees also came to know Goncharov as a close friend with a keen sense of humor.

A memorial service was held Wednesday in the courtyard of the MCC Moscow attended by several hundred friends and co-workers from Russia's space agency and NASA.

A Russian announcement of Goncharov' death read, "The Mission Control Center-Moscow, mournfully announces the untimely death of leading science associate of MCC-M, Boris Yakovlevich Goncharov. A very nice man passed away who was a kind and helpful friend and good family man. Goncharov worked more than 25 years at the enterprise. He became a high class specialist recognized not only in our country, but also abroad. His knowledge is shared lavishly with all his colleagues. Always rendering sincere help, he was distinguished by modesty and a sensitive attitude toward people. A good memory about Boris will stay in our hearts forever."

Goncharov is survived by his wife, Galina, two children Vasily and Vera and one grandchild. He was 49.

Columbia lands at Edwards

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Columbia was about 4,390 miles from the Edwards landing strip in California.

Temperatures ranged from 2,500 to 3,000 degrees Fahrenheit on some parts of the tiles. Commander Young took manual control of *Columbia* about 115,000 feet up.

Twin sonic booms announced the arrival of *Columbia* while the vehicle was still at an altitude of 54,000 feet. About 400 feet above the desert landing gears were lowered.

Columbia landed on Runway 23 of Rogers Dry Lake at Edwards Air Force Base in the Mohave Desert rolling 8,993 feet — within 200 feet of the estimate.

Shuttle program officials and astronauts said *Columbia* exceeded performance expectations and dubbed it their "incredible flying machine."

Party features Russian dancers

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of the space shuttle and Southwest Airlines hot-air balloons from Howard L. Ward Park. The Russian Dance Troupe and Troika Band will play at 6:30 p.m. at the Nassau Bay Hilton, and a Russian Festival Farewell Banquet, featuring entertainment by the Eddie Adcock Band and Jack Bacon Choral Group, will begin at 7 p.m., also at the Hilton.

Tickets are on sale at the Bldg. 11 Exchange Store. A limited number of tickets will be available for purchase at the door. Parking at SCH is free.

Admission will allow party-goers access to all exhibits and activities available at SCH, except tram tours. Snacks and soft drinks are included in the tickets, which also may be exchanged for beverage coupons. Optional food purchases can be made at the Silver Moon Cafe. Live entertainment will include a Russian Dance Troupe, Troika Band, the Lone Star Bluegrass Band and, now, the Max-Q astronaut band. For details call x35350.

Gagarin greeted by cow, two farm workers

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glow of the craft's exterior heating to several thousand degrees as acceleration forces built to 8G's during his plunge back to Earth.

A drogue chute deployed 2 1/2 miles above the ground, followed by the main chute a mile later to slow the capsule's descent. But, as the flight rules dictated, Gagarin parachuted from the capsule at an altitude of 4 miles, blowing the hatch to his capsule before ejecting. At 10:55 a.m., Moscow time, less than two hours after he blasted off, Gagarin landed on a farm at Smelovka, near Saratov, in Central Asia. He was greeted only by a cow and two farm workers. A 130-foot high titanium obelisk marks where the first human in space returned to Earth.

Science experiments progress available via Internet

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The crew worked with the experiment well into this week to complete the processing of 70 samples of different metals for varying lengths of time in the furnace. The samples were brought up on *Atlantis* and will be returned for analysis by the University of Alabama, on *Atlantis*' next flight. The microgravity environment of space significantly affects metallurgical properties during the melting process that will allow investigators the opportunity to extrapolate the results and improve industrial technology areas such as cutting tool quality.

Other activities aboard the station this week included Earth observations with most of the scheduled sites being photographed. Photography could be interrupted due to the attitude, or position, of the station in support of other scientific investigations.

Long-term protein crystal growth experiments are being conducted as well as space acceleration measurements that could affect the growth process. A unique container filled with cold gaseous nitrogen surrounding protein samples keeping them frozen was launched aboard *Atlantis* and has slowly begun "thawing" allowing the crystal growth process to begin. The crystals will be grown for the duration of the mission.

Daily monitoring of the quail egg experiment is being conducted as are periodic fixations of eggs throughout the mission at various stages of development. This study will provide additional insight into embryonic development to evaluate changes due to the weightlessness of space.

The crew continued to operate these experiments throughout its workday this week. The crews workday typically begins with wakeup around 8 a.m. The crew's sleep period begins about 11 p.m.

Meanwhile. the Priroda science module, that will complete the assembly of the Mir, remains scheduled for launch on April 23 from Baikonur and dock with Mir on April 26. Last Friday, the shroud and nosecone were scheduled to be installed around the module and Monday the Russian version of the flight readiness review was held. Tuesday, the module was transferred to the launch processing facility for integration into the Proton rocket. Priroda, the Russian term for 'Nature,' will be used primarily to study the Earth for ecological and environmental purposes.

NASA Television will feature weekly editions of its Mission Update program every Friday to review the week's developments aboard Mir and U.S. astronaut Shannon Lucid's 4-1/2 month stay aboard the Russian outpost.

In addition, weekly status and science status reports will be made available on a new NASA Shuttle-Mir Web site available on the World Wide Web segment of the Internet. The site can be accessed at the address:

http://shuttle-mir.nasa.gov

Space News Roundup

The **Roundup** is an official publication of the National Aeronautics and Space Administration, Lyndon B. Johnson Space Center, Houston, Texas, and is published every Friday by the Public Affairs Office for all space center employees.

The Roundup office is located in Bldg. 2, Rm. 181. The mail code is AP2. The main Roundup telephone number is x38648 and the fax number is x45165.

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